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PUBLIC-PRIVATE
VENTURES IN
BACHELOR
QUARTERS

A Solution to
the Loss of
Military
Construction
Projects

VOLUME 1

Findings, Conclusions, and
Recommendations

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13. ABSTRACT (Maximum 200 words) The Navy has a substantial requirement for new bachelor quarters (BQs) during a time of austere budgets for military construction. Public/private ventures (P/PVs) may offer an alternative. With a P/PV, a private company would finance, design, build, operate, and maintain a new BQ facility at its own risk of profit or loss. This report examines the feasibility of P/PVs, and how they should be structured, using five test sites, and presents example requests for proposals. P/PV BQs for enlisted and officer transient personnel and for junior enlisted permanent party personnel offer a less costly alternative to BQs built and operated with conventional Government funding. Factors affecting economic feasibility of a P/PV BQ include project size, occupancy guarantees, interest rates, contract term, construction specifications, and Government statutory and regulatory restrictions. Occupancy guarantees are particularly important. With a reasonable occupancy rate guarantee, the contractor can charge much lower room rates. We recommend that the Navy pursue P/PVs and accelerate its internal P/PV planning and procurement process. The Navy should assume more risk by guaranteeing occupancy rates where warranted by demand for lodging. The Navy should also request DoD to develop an economic justification methodology specifically for P/PVs.				
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PREFACE

Volume 1 of this report describes the findings, conclusions, and recommendations of our study of public/private ventures (P/PVs) in the construction and operation of bachelor quarters for Navy enlisted and officer personnel. Because of the extent of the study and its duration, we have published a number of other documents ranging from position papers to final reports on one or another aspect of P/PVs for bachelor quarters. Those various documents are included in the appendices to this report, which are bound separately in Volumes 2, 3, and 4.

Volume 2 presents Appendices A through E; Volume 3, Appendices F, G, and H; and Volume 4, Appendices I through L.

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Executive Summary

PUBLIC-PRIVATE VENTURES IN BACHELOR QUARTERS

A Solution to the Loss of Military Construction Projects

The Navy has a substantial requirement for new bachelor quarters for both enlisted and officer personnel. The bachelor quarters are needed to replace substandard and aging facilities at existing installations and to meet housing requirements at the Navy's new strategic homeports. Because of limited military construction funds, the Navy is pursuing public/private ventures as an alternative method for financing bachelor quarter construction. Such a financing method is a new way of obtaining bachelor quarter facilities and services. With a public/private venture, a private company would finance, design, build, own, operate, and maintain a new bachelor quarter facility at its own risk of profit or loss.

Our analysis shows that public/private venture bachelor quarters for enlisted and officer transient personnel and for junior enlisted permanent party personnel offers a less costly alternative to bachelor quarters built and operated with conventional Government funding. Many factors can affect the economic feasibility of a public/private venture bachelor quarter: project size, occupancy guarantees (if any), interest rates, contract term, construction specifications, and Government statutory and regulatory restrictions. Unfavorable terms for any of these factors can seriously affect the economic feasibility of a project. Occupancy guarantees are particularly important. If the Navy guarantees a reasonable occupancy rate thereby reducing risk to the private sector, public/private venture contractors can charge much lower room rates and save the Navy a significant amount over the life of the project. Adding amenities that do not produce revenue — a conference center is an example — generally reduces the economic feasibility of public/private venture bachelor quarters.

Dormitory and hotel industries are eager to participate in public/private ventures for both enlisted and officer bachelor quarters. Those industries can build and operate facilities that meet or exceed Navy standards at a lower cost than the

alternatives -- building with military construction funds or doing nothing and housing Navy personnel on the economy. The private industries have no problems with the Navy's security, drug-testing, and other operational requirements.

We recommend that the Naval Facilities Engineering Command take the following actions to capitalize on the opportunities afforded by public/private ventures:

- Pursue such ventures when the conditions indicate a high probability of success.
- Accelerate the planning and procurement process for public/private ventures within the Navy, establish a common methodology for project analysis and procurements, and simplify the contractual requirements for such ventures.
- Assume more risk in public/private venture projects by guaranteeing occupancy rates where warranted by the demand for lodging.
- Use local codes and industry standards for bachelor quarter contract specifications.
- Request DoD seek legislation to make Title 10, United States Code, Section 2809, a permanent legislative authority to provide the contractual flexibility necessary to maximize the economic advantages of public/private ventures to the Navy.
- Request DoD develop an economic justification methodology specifically for public/private ventures.

The first contract award for two such bachelor officer quarters has thus far validated our conclusions and recommendations.

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CHAPTER 1

INTRODUCTION AND BACKGROUND

MILITARY CONSTRUCTION BUDGET REDUCTIONS

Most Navy installations have one or more bachelor quarters (BQs) to provide on-base housing for unmarried, active duty sailors. Bachelor officer's quarters (BOQs) provide housing for commissioned officers. Current standards require BOQs to accommodate only one officer per room and to have private baths in each room. They are functionally the same as a hotel or apartment complex. Bachelor enlisted quarters (BEQs) provide housing for enlisted personnel. BEQs accommodate from one to four sailors per room, depending on rank, and have shared bathrooms per two-room suite. They are functionally the same as a college dormitory. BQs may house either transient duty sailors, permanent party personnel, or both. Transient duty personnel are those sailors on temporary orders at an installation for 180 days or less.

The Navy has a substantial requirement for new bachelor housing facilities to replace many substandard and aging facilities and to meet the needs for new facilities required by the Strategic Homeporting Program. However, Federal budget deficits and other economic and political factors have led to DoD spending reductions. The Navy, in turn, has had to reorder its military construction (MILCON) spending priorities, and requests for MILCON funding of BQs are not meeting the total need.

Congress provided much of the impetus to the Navy's reordering of MILCON priorities by deliberately reducing MILCON funding of all types for budgetary reasons. BQs are one of the categories of MILCON that Congress has specifically targeted for significant reductions. In FY87, Congress eliminated three BOQ projects from the Navy MILCON program. In making the FY87 BQ cuts, Congress directed the Navy to investigate alternative financing for BQs.

That FY87 congressional directive and the probability that other projects would be cut from future MILCON programs caused the Navy to investigate the feasibility of private-sector financing, construction, operation, and maintenance of BQ facilities.

PUBLIC/PRIVATE VENTURE ALTERNATIVES

An alternative form for providing Government facilities in general is the public/private venture (P/PV). Federal, state, and local governments are increasingly looking to P/PVs as an alternative source of funds for new facilities. Public taxation and debt financing backed by taxpayers are the traditional financing mechanisms to which P/PV alternatives are compared.

A P/PV is a means of obtaining private capital and expertise to construct and operate a Government activity. P/PVs are a unique form of the privatization of Government. The qualities that make them unique are the financing and ownership of the facilities and the provision of services in the facilities at entrepreneurial risk. In its Commercial Activities Program, the Federal Government contracts with private companies for services that require little or no facility financing and pays all costs and a profit. In contrast, P/PVs require the contractors to finance and own the facilities or improvements and normally to provide services with the facilities and to do so at the contractors' own risks of profit or loss.

The Navy, as well as the other Military Services, wants to capitalize on the opportunity that P/PVs may afford in the housing area: obtaining housing facilities for active duty personnel without using increasingly scarce MILCON dollars.

PROBLEMS CREATED BY REDUCTIONS IN MILCON FUNDS FOR BACHELOR QUARTERS

Reductions in MILCON funding for BQs have created several serious economic and social problems. If, for example, not enough military quarters are available, sailors are forced to live on the open economy, and per diem lodging costs for transient personnel are greater than the costs of owning and operating a military BQ. Thus, both the Navy and the taxpayer may be spending more money out of annual operational funds in the long run than they would spend on military BQs. However, when looked at in single-year budget cycles, the cost of 1 year of per diem lodging is smaller than the one-time MILCON cost of a multiyear building.

Another economic and social (i.e., morale) problem arises from the continued use of old facilities long after their expected life. Installations continue to repair and renovate those facilities, often at high cost, out of annual operations and maintenance (O&M) funds. Whether repaired or not, many of these older facilities

remain inadequate and substandard. They often do not meet DoD criteria for adequate space, furnishings, and safety.

If not enough BQs are available or if the available facilities are dilapidated, fewer unmarried personnel are able to reside on base. We may see morale problems if the sailors want to live on base or must pay a premium for adequate off-base quarters, or we may have readiness problems if essential active duty personnel cannot live on base with the rest of their military units.

STATUTORY AUTHORITY FOR PURSUING P/PV ALTERNATIVES

Congress has aided the search for alternative housing by passing enabling legislation. Title 10, United States Code (U.S.C.), Section 2809, allows the Services to test P/PVs in limited categories for facilities and services on military installations. That same section allows payments of Federal money or the promise of payment, i.e., revenue guarantees to contractors who provide the facilities and services. However, Section 2809 is also restrictive; it permits only one test per Service, per year, in each specified category. Furthermore, it is a temporary authority for test purposes, and DoD does not know whether the statute will become permanent nor whether the category and number of restrictions will be loosened.

Another statute, 10 U.S.C., Section 2667, allows the long-term leasing of land on military installations to private companies who will provide certain types of facilities, including military housing. Section 2667 offers no funds to pay for the facilities, but the statute, through its leasing authority, does give the private contractor a legal right to use the land.

The most recent legislation to affect P/PVs is 10 U.S.C., Section 2812. It allows the Services to lease P/PV facilities from the private sector for up to 32 years, at which time the title for the facilities shall vest in the United States. Each Service is allowed no more than three such lease-purchases in FY90, and no more than five a year in FY91 and FY92. The Attorney General has not ruled on whether this new legislation allows the Services to offer the revenue guarantees mentioned above under 10 U.S.C., Section 2809. However, the new legislation states that the lease shall include such terms and conditions as the Secretary concerned determines are necessary or desirable to protect the interests of the United States. That provision

would seem to allow the Services broad latitude to include in the lease such things as revenue guarantees.

NATURE OF LMI STUDY AND REPORT

The objective of our study was to determine the economic and operational feasibility of the P/PV alternative for providing BQs at Navy installations. A corollary objective was to determine the optimal conditions for feasibility and initiate a market test using those conditions.

We discussed the P/PV BQ concept with a wide cross section of industry representatives, and from those discussions and analysis of industry financial data, we determined the conditions under which P/PV BQs would be feasible and infeasible. A complete discussion of the conditions for feasibility is contained in Chapter 4. In general, feasibility is dependent on the interplay of the following factors: project size, occupancy guarantees, interest rates, contract term, construction specifications, and Government statutory and regulatory restrictions.

To aid in our economic analysis, we built a computer model for determining feasibility. We used the model to determine the feasibility of P/PVs at particular sites and to simulate dozens of other scenarios to develop matrices to help installation commanders and others through the initial decision process when considering P/PVs.

We analyzed the Navy requirement for BQs at several test sites and developed the economic and operational parameters to maximize the chances of obtaining a successful P/PV BQ at those sites. We then drafted model requests for proposals (RFPs) and Source Selection Plans for procurement of P/PV BQs at these test installations. The feasibility analyses and draft procurement documents for these test sites appear as appendices to this report.

A contract has been awarded for the first two P/PV BOQs based on our analysis and recommendations. Thus far, it has borne out our conclusions and recommendations. Appendix A summarizes the features of that solicitation process.

This report summarizes our research and serves as a guide to the Navy for P/PVs for BQs in the future.

CHAPTER 2

NAVY REQUIREMENTS AND EXPECTATIONS

Navy manuals and policies establish a number of criteria for MILCON BQs. We found that some Navy managers at installations, major claimants, and other commands tended to apply these criteria to P/PV facilities without distinguishing them from the MILCON projects they were familiar with. They have also developed certain expectations of the P/PV concept. Many of these surfaced during this study and during the coordination process for P/PV RFPs resulting from this study.

PHYSICAL REQUIREMENTS

The Navy wants well-designed and well-built facilities for its personnel. The Naval Facilities Engineering Command (NAVFAC) Design Manual (DM)-36 series contains the BQ design criteria that are based on DoD criteria. For MILCON projects, the Navy presents the contractor with a complete design and a detailed list of specifications to establish the level of construction quality the Navy wants. Some Navy managers would prefer the same approach for P/PV facilities even though those facilities will be owned and operated by the private sector. What the Navy needs is a method to meet its requirements for design and quality without alienating prospective proposers. Some of the Navy's requirements, for example, are not in general use in the private sector. One such requirement, found in NAVFAC DM-36.1, states, "Siting shall also take into account orientation for solar heating and possible retrofit for solar heating." It also says that fallout shelters shall be provided where required and feasible. Commercial designs for hotels and dormitories generally do not take such items into account.

The Navy has also defined minimum room sizes and has established who is entitled to kitchen facilities and other amenities. That information is summarized in Table 2-1. Amenities now found in most hotels, such as swimming pools, saunas, and meeting rooms, are not required in BQs because they are available elsewhere on the installation. For the same reason, Navy BQs do not include restaurants. However, Navy managers have not objected to the concept of a coffee shop in a P/PV BQ if the contractor wishes to include it, but they do not want direct competition with the

installation's dining facility or clubs. The Navy will also consider combining transient and permanent party occupants in one P/PV facility but not officer and enlisted personnel.

TABLE 2-1
NAVY REQUIREMENTS FOR BACHELOR QUARTERS

Type	Net SF per person	Gross SF per person	Amenities	Maximum occupancy
Permanent party officer, O-3 and above	460	650	Living room, bedroom, private bath, and kitchen	1 person per suite
Permanent party officer, O-2 and below	330	475	Living room, bedroom, private bath, and pullman kitchen	1 person per suite
Transient officer	250	—	Living room, bedroom, and private bath	1 person per suite
Permanent party enlisted, E-7 to E-9	360	564	Living room, bedroom, and private bath	2 rooms per person
Permanent party enlisted, E-5 and E-6	180	282	Living/bedroom	1 person per room
Permanent party enlisted, E-4 and below	90	141	Living/bedroom	2 people per room
Transient enlisted	125	—	Living/bedroom	2 people per room

Note: SF: square footage.

Source: NAVFAC DM-36 series.

The Navy bases the size of its BQs at each installation on the installation's projected requirements for such space according to criteria in NAVFAC Manual P-80. These requirements have usually been calculated and submitted as justification for MILCON requests. However, installations do not want to use these estimates for P/PV contracts. An installation would be responsible to a P/PV contractor for the published requirement estimates and would be financially liable if room occupancy fell below any guarantees offered. These points prompted a reexamination of the

projected BQ requirements at all test sites that seriously considered issuing an RFP for a P/PV. In all of these cases, the installations made changes to the original MILCON requirement estimates.

All other factors being equal, installations would prefer a P/PV BQ to be located on base where it is more convenient and economical for transient personnel who are often without transportation. It is also better for permanent party personnel to be closer to their duty stations.

OPERATIONAL REQUIREMENTS

Once a BQ is built, the Navy wants it operated professionally and maintained properly. The facility's use is to be restricted to authorized users. The primary users for permanent party BQs are active duty military; but geographic bachelors (i.e., assigned officers whose families are living elsewhere) are also allowed to stay on an as-available basis. At transient BQs, the primary authorized users are active duty military and DoD civilians traveling on orders. Other authorized users include retired military, military on leave, reservists, DoD contractors, and sometimes relatives of personnel stationed at the installation. At many bases these other authorized users make up a sizable portion of the market available to a P/PV contractor and could be a source of additional revenue. The Navy's current position is that the other authorized users should be charged room rates equal to those charged the primary users because personnel on leave and military retirees view low-priced BQ accommodations as an important benefit.

Certain military requirements imposed on BQs and their occupants are not found in the private sector. Authorized installation personnel must be able to enter the facilities to inspect occupants and their rooms and search for contraband such as illegal drugs and weapons. These searches are usually unannounced and take place before dawn.

The Navy provides complete maid service for all transient BQ occupants (paid for by the transients) and at least for the common areas of permanent party BOQs. The occupants usually clean the common areas of BEQs. In a P/PV, the Navy would like room maid service to be available as an option to all permanent party BQ residents for a fee.

CONTRACTOR PAYMENT

Transient duty personnel are required to pay for their rooms out of their own pocket and they are later reimbursed from funds on a per diem basis when they file a travel voucher at their home installations. Permanent party occupants of an on-base BQ do not pay for their quarters. Permanent party personnel living in off-base private accommodations are paid a basic allowance for quarters (BAQ) and a variable housing allowance (VHA). The combined BAQ and VHA are intended to cover 85 percent of the average cost of lodging in the local area, and any additional costs are paid by the service member. For a P/PV permanent party BQ, the Navy must devise a method of payment to transfer BAQ and VHA funds to the contractor.

CONTRACTUAL REQUIREMENTS

For any P/PV, the Navy needs sufficient contractual safeguards to ensure that the contractor provides a quality facility that is professionally operated and maintained. Some installations and major claimants have evolved greater expectations, however. Some managers expect the contractor to assume virtually all risk for the venture while still giving the Navy a large share of the rewards. An example is the minimum occupancy guarantee discussed in Chapter 4. During the RFP coordination process, management has been reluctant to assume the finite risk for such guarantees but wants the lower room rates that such guarantees would allow. This paradox is addressed later in this report.

CHAPTER 3

INDUSTRY BACKGROUND

HOTEL INDUSTRY

In most respects, a Navy transient BEQ or BOQ is simply a hotel for a restricted clientele. The hotel industry easily relates to the financial and operational needs of those facilities and, in fact, Navy BQ staffs routinely attend the training seminars and conferences offered by the industry. The hotel industry can also relate to permanent party BOQs. Although not as common as transient hotel rooms, some hotels offer efficiency apartments for extended stays that closely resemble permanent party BOQ rooms. Thus, the hotel industry can easily understand and meet the requirements in a P/PV BOQ or transient BEQ contract.

The hotel industry has become dominated by chains and franchisers, and the privately owned and operated single hotel segment of the industry has declined. This latter segment would be less prepared than the chains and franchisers to finance, design, construct, and efficiently operate a P/PV BQ. Conversely, the chains and franchisers in many respects are better prepared than the Navy to build and operate a BQ. Their segment of the industry is mature and experienced and has been honed by competition into an efficient and customer-oriented business.

The major hotel chains and franchisers devote major resources to research and development into customer satisfaction. Before launching its new line of budget hotels, for instance, the Quality International Corporation built three rooms of different designs, invited the general public to sleep in them, and evaluated their reactions. In Memphis, Tennessee, Holiday Inn Corporation has a showroom in which movable partitions allow hotel managers and owners to experiment with different room designs, decors, and furnishings.

The hotel industry also has an enormous database of information on everything from financial ratios to market trends, which allows it to maximize its operating efficiency. Its information on the size of the market is especially important, for such information helps determine the size of a hotel, a crucial decision for economic

efficiency. The industry is, therefore, vitally interested in the accuracy of requirement figures presented in any P/PV RFP.

The hotel industry also has advantages over the Navy in design and construction. A hotel design costs the chains and franchisers only about 2 to 3 percent of its construction cost compared with the 6 percent the military spends designing a MILCON BQ. Part of this difference is explained by the industry's use of "off-the-shelf" designs that can be adapted to various sites. The industry can also finance and build a hotel far quicker than the Services can obtain a MILCON BQ. Holiday Inn Corporation, for instance, takes an average of only 7 months to build a hotel. However, one problem may arise in using a P/PV for a BQ. Some chains and franchisers (e.g., Marriott Corporation) do not construct the hotels they operate. They enter joint ventures with developers. This approach could complicate the contracting of a P/PV BQ and cloud the division of responsibility between builder and operator.

Private-sector hotel designs usually include swimming pools, restaurants, saunas, and other ancillary services. These items would not be needed in a P/PV BQ since they are usually found elsewhere on the installation. Otherwise, the hotel and MILCON designs compare favorably. The size of the rooms in today's midmarket chain and franchise hotels ranges from 276 to 312 net square feet, which is well above the 250 net square feet required by the Navy for transient offices (see Table 2-1). Room dividing walls are usually 6-inch block construction and the quality of furnishings is usually superior to that found in BQs. The industry often describes the quality of construction for a hotel in terms of the generic descriptions found in commercial estimating services. For instance, a class of construction can be determined by defining the materials for a building's frame, floor, roof, and walls, and the type of exterior walls, interior finishes, lighting, plumbing, and heating, ventilation, and air conditioning equipment. The industry can then refer to a standard such as *Marshall Valuation Service Class B*, type average, and avoid the detailed lists of specifications associated with MILCON projects.

Conference facilities are often combined with hotels. They are seldom financially self-supporting, however, and are provided to bring increased room occupancy. The cost of conference room construction and operation is borne by an

increase in room rates, just as are the costs of gymnasiums, saunas, and other ancillary services that are not self-supporting.

In today's market, the hotel industry expects room occupancy rates of only 60 to 65 percent. (In some locations those percentages may be higher or lower.) The drive to fill the unused capacity has helped fuel an intense competition in the form of heightened customer service. Many hotels offer complimentary shampoo and shaving cream; some offer inexpensive weekend package rates; and some have arranged for guests to get credit for airline frequent-flyer mileage. This practice of customer service would serve BQ occupants well. More important, however, the expected low occupancy rates in the private sector would make Government-guaranteed room occupancy rates extremely attractive. A guaranteed occupancy rate would not have to be very high to exceed the industry average.

The industry is generally enthusiastic about the Navy's P/PV BOQ concept. However, signs indicate that this early optimism may begin to sour because of bad experiences with P/PVs by the other Services. Responses to the Air Force's RFP for the transient quarters at Nellis Air Force Base, for instance, were held in abeyance for many months. The attempt dismayed the industry because of the complexity of the RFP and the Air Force's attempt to avoid most of the risk but realize most of the financial advantages. Similarly, Holiday Inn Corporation won the contract for a P/PV transient living quarters at Fort Drum, New York, but has since sold it. Holiday Inn had wanted a "foot-in-the-door" to military hotel P/PVs although it was reluctant to get involved in just one facility at a time. Additional P/PVs and regional "packaging" of installation requirements have been slow to follow and interest is beginning to fade.

DORMITORY INDUSTRY

The dormitory industry is less well-defined than the hotel industry. A small number of developers build dormitories for college campuses. Some are built for the colleges to own and operate, but a few, relatively small companies own and operate private, off-campus dormitories following a concept very much like a P/PV BEQ. In addition, the academic community's interest in P/PV dormitories has risen dramatically in recent years, and universities across the country are pursuing them. However, the requirements for college P/PV and private dormitories often exceed

those of the military since they usually include weight rooms, cafeterias, room cleaning, and a staff to organize social and sports programs.

The make-up of the dormitory industry varies. Some companies build the facilities and subcontract their operation; others keep operations and maintenance in-house. At least one would be interested in a BEQ for as few as 300 to 400 people, but most prefer contracting only for larger facilities. The industry leader operates 20 dormitories (housing 14,000 students) ranging from 500 to 1,400 beds per facility. Several companies would be more interested in contracting for military BEQs if they were contracted by region instead of one at a time.

Companies in the dormitory industry have more confidence in occupancy rates than companies in the hotel industry. Therefore, they perform less sophisticated economic analysis and consequently do not have the same wealth of data and financial ratios as the hotel industry. Market analysis is still done carefully, however, because, like hotels, the financial success of a privatized dormitory depends on its occupancy rate. Respondents to any P/PV RFP would examine Government requirement figures closely.

The designs of dormitories built by this industry run the gamut from rooms clustered around common areas (such as the Navy's Welton-Beckett design) to buildings that could pass for military BEQs. The designs cost less than 3 percent of construction costs, and the industry talks about project completions in terms of months, not years. Rooms are designed for two to four occupants per room and each occupant is usually allowed 200 net square feet including bathrooms and closets.

The dormitory industry can relate to the requirements of military P/PVs and it is eager to enter this new market if the conditions are right.

SHARED TRAITS OF THE TWO INDUSTRIES

Some traits are shared by the hotel and the dormitory industries. For instance, neither is familiar with contracting with the Federal Government and both might be discouraged from responding to any RFP if it is large and complex. However, they see no problem with meeting special military needs such as dormitory inspections for cleanliness or drug possession, base passes, and compliance with an installation's architectural plan. Similarly, they are not concerned that vandalism will be higher in the military facilities than in their civilian counterparts.

The industries are extremely concerned about the possibilities of base closures and realignments, however, and want some contractual protection against financial loss from them. Companies are also concerned about their inability to predict whether the Government will contract future P/PV BQs to competitors and cause a sudden decrease in room occupancy.

Both industries would prefer to build a BQ on base rather than off. If the contract were to end for any reason, they saw little advantage in their having an off-base facility for marketing to the general public. The demand for a dormitory would not exist unless a college campus was within walking distance, and a BOQ would be regarded as a second-rate hotel since it would not have such amenities as a swimming pool or restaurant. Moreover, either structure would probably be located in an undesirable part of town, if a town existed. Furthermore, in some communities, a facility built on Federal property may be exempt from some of the zoning requirements, building ordinances, and even some of the taxes in effect for off-base real property.

Both industries place a high priority on contracting by region instead of one facility at a time. The hotel industry, especially, is used to operating on a regional or national basis. Regional packaging brings economies of scale in construction, management, and supplies. The investment of a large corporation's time to learn and understand Federal Government contracting and the way the military operates may not be worthwhile for only one BQ.

The industries do not consider multifunctional packages — building a combination BOQ and conference center or club, for instance — as good investments. The case studies presented in Appendix B illustrate the industries' points. Conference centers are seldom self-supporting in the private sector, and the additional restrictions of operating on a military installation would not be good for marketing to the public. Operating a conference center not open to the general public would require a large military demand that was not being satisfied by existing conference rooms and classrooms, and a willingness to pay for the use of the space. Similarly, a club not open to the general public presents a higher degree of risk.

INDUSTRY REACTION TO CONTRACTING REQUIREMENTS

After discussing P/PVs with many Government entities including municipalities, county governments, the National Park Service, and the U.S. Army

Corps of Engineers, we found that virtually all of their P/PV contracts were awarded on the basis of a negotiated procurement rather than sealed bidding in which the lowest bidder wins the contract. Under a negotiated type of procurement, the public entity can use source-selection procedures to weight the selection factors toward qualities it feels are more important, such as experience, rather than making cost the sole determining factor.

Source-selection procedures offer the highest probability of success in selecting an offeror and awarding a contract for P/PV BQs. The source-selection procedure is a negotiated acquisition process that allows the Government to evaluate offers based on factors other than price alone and to select the proposal that provides "the greatest value to the Government." The factors to be considered in evaluating proposals are tailored to each acquisition. Evaluation factors for each acquisition and the relative importance of those factors are within the broad discretion of Government officials. Evaluation factors that may apply to a particular P/PV acquisition are technical excellence, management capability, personnel qualifications, experience, past performance, schedule, and cost.

Contracts for P/PVs can take the form of leasehold agreements or concession agreements. Leasehold agreements require the Government to execute two separate contract actions: (1) a landlease, executed by the cognizant NAVFAC engineering field division, which transfers interest in a parcel of Government land to a contractor, and (2) a leasehold contract wherein the Government agrees to lease back capital improvements that are constructed by the contractor. A concession agreement does not require a separate landlease contract; in a concession contract, Government assets (i.e., land, equipment, etc.) can be assigned to a contractor for the contract duration.

Typical MILCON solicitations are restrictive and overspecified relative to the requirement for P/PV RFPs. MILCON solicitations contain Davis-Bacon Act¹ and Buy American Act restrictions as well as voluminous Federal, military, and standardized specifications. NAVFAC's legal counsel has held that the Davis-Bacon, Buy American, and Service Contract Acts may not apply to some P/PVs. Moreover, the private sector, which will own the capital improvements, can produce quality

¹The Davis-Bacon Act, passed by Congress in 1931, requires the contractor on any construction job for the Government in excess of \$2,500 to pay workers prevailing wages as determined by the Department of Labor.

facilities without many of the detailed specifications used in MILCON projects. In lieu of using detailed specifications, the Navy can develop performance standards describing what is expected of the contractor without detailing how it is to be accomplished.

Developers need the RFP to describe the full extent of the development opportunity. They are typically interested in such items as supply-and-demand figures, market restrictions, pricing restrictions, site plans, utility plans, and geotechnical studies (i.e., soil borings). They also need a detailed inventory of what assets, if any, will be assigned to the contractor. (Note: Any land assigned to a contractor will be subject to any existing and/or future easements for electric power transmission lines, telephone lines, water, gas, gasoline, oil or sewer pipeline, or other facilities.) The RFP also needs to specify minimal capital improvement requirements along with the associated development schedule.

Contractors require a great deal of basic information such as utility costs. That information is usually provided in the RFP or in response to questions at a preproposal conference. Moreover, the contractors may also need the prices of off-base utilities if they are an option. Installation managers can greatly facilitate the solicitation process by ensuring that such information is credible and readily available.

We found that developers will be reluctant to submit proposals for P/PV contracts if they are not protected from possible base closures or realignments. To provide the needed protection, we believe the Navy should include a reimbursement guarantee in the contract, provided such clause is not in violation of the Anti-Deficiency Act. That clause should state that if the total authorized military strength of the base is reduced by 50 percent or more from the strength at the time of contract award, and if that reduction lasts more than 90 consecutive days, the Government guarantees to reimburse the contractor for capital improvements at their depreciated book value. The clause would also mandate that the contractor maintain records of the depreciated book value of capital assets in accordance with generally accepted accounting principles for discounting such assets.

Developers normally expect to provide their own physical security for their operations and facilities. Security includes the safekeeping of all structures, facilities, equipment, items for sale, and records used in the management and

operation of the P/PV. Base security and fire protection should be provided by the activity in accordance with the installation's rules and regulations; by doing so, the installation will preclude the contractor from having to duplicate services it is already providing. However, the contractor should be required to conform to Navy Life Safety Requirements at all times during the contract term.

Under 10 U.S.C., Section 2809, the Navy would not be able to take ownership of capital improvements during the P/PV contract term because the contract would be viewed as a lease-purchase deal, and title to contractor improvements would remain with the contractor for the term of the contract. Contractor interests would not include any interest in the assigned land upon which the improvements are located.

Upon expiration of the P/PV contract, we believe the Navy should, at its option, obtain title to contractor improvements for a total sum of \$1.00 or the depreciated book value of improvements, whichever is greater. However, the contractor should have the right to remove all signage and trade equipment.

The contract term for P/PVs should be as long as possible. Long contract terms enable developers to obtain long-term financing, which lowers their annual debt service and makes P/PVs more feasible.

BONDING

The practice of requiring bonds has been a traditional way of life for anyone engaged in contract construction. Surety companies underwrite bonds for a certain percentage of the contract price. There are three main types of bonds:

- Bid bonds insure that the bidder, if successful in the bid, is prepared to perform the work according to the terms of the contract.
- Performance bonds insure that the job will be completed according to plans and specifications.
- Payment bonds insure anyone (i.e., subcontractors and suppliers) dealing with the bonded contractor that they will be paid.

Traditionally, the Federal Government has required its contractors to be bonded, in accordance with the Miller Act, on all construction contracts exceeding \$25,000 in value. Typically, the Government requires a bid bond in the penal sum of 20 percent of the bid amount. After award of a contract, the contractor to whom award is made is required to furnish two bonds; namely, a performance bond and a

payment bond. The performance bond is normally in a penal sum of 100 percent of the contractor's cost of construction; the payment bond is normally in a penal sum of 50 percent of the contractor's cost of construction.

The Navy has included in its RFPs for P/PV BQs a requirement for submission of a "Maintenance, Renewal, and Restoration Bond." According to the Navy, the purpose of that bond is to secure the contractor's faithful performance of its removal, restoration, and maintenance obligation as set forth in the lease agreement. From our discussions with the surety industry, we found that this type of bonding requirement is unique and not an industry practice. Therefore, the industry feels it is unnecessary and impractical and does not want it.

The effect that surety companies have had on construction contractors is evident in the area of competition. Only financially sound and reputable companies qualify for bonding by surety companies; therefore, the Government, by requiring that the contractor be bonded, is virtually assured of adequate completion of the job.

CHAPTER 4

GENERAL ECONOMIC ANALYSIS

The success of the P/PV approach to providing any specific BQ facility hinges primarily on economic feasibility. This feasibility is a two-way street — the project must be economically attractive to both the Government and the private sector or neither will be interested in undertaking it. The economic feasibility issue depends on the answer to the question, "Is the private sector willing and able to finance, design, construct, own, maintain, and operate bachelor quarters at a lower price than the cost to the Government to provide similar facilities and services?" This chapter describes the results of an analysis of the economics of P/PVs. We incorporated the Office of Management and Budget (OMB) Circular A-104 guidelines for buy-versus-lease Government cost comparisons. From our economic analysis, we conclude that the A-104 methodology is not appropriate in some respects for BQ P/PVs; we have noted our disagreement with A-104 in this chapter.

When we began this study, no P/PV had been undertaken for military BQs. Because we had no history for guidance, we contacted various industry representatives to ascertain their interest and comments on P/PV BQs. We met with large- and medium-sized hotel and dormitory developers, management companies, and financial institutions. During the course of our study, we continually solicited and received comments from these companies regarding all aspects of P/PV BQs, especially economic feasibility.

We found these companies to be very interested in the P/PV BQ concept. Their enthusiasm was evident by their continuing follow-up contacts offering us further detailed comments on the P/PV BQ concept. An important part of their input was to comment on our options for pricing, financing, risk analysis, demand and supply analysis, and other economic issues. We also held an industry forum on our approach to Navy P/PV BQs for Submarine Base (SUBASE), New London, Conn., and Naval Education and Training Center (NETC), Newport, R.I.

Under a subcontract, the certified public accounting firm of Pannell Kerr Forster (PKF), one of the nation's leaders in performing economic feasibility studies

of proposed projects for the hotel industry, provided industry-standard costs of operation, sources, and methods for estimating design and construction costs, for comparable (i.e., budget) private hotels and dormitories. Financial institutions usually require independent economic feasibility studies by a firm such as PKF before committing funds to a developer for a specific project. PKF maintains a national database on industry operations and costs and is experienced in constructing economic feasibility models for specific private-sector hotel projects. We incorporated these PKF costs and methodologies into our computerized economic models (discussed below) for analyzing P/PV BQ feasibility.

Early in our study, we realized that the number and complexity of important factors influencing P/PV BQ economic feasibility were so great as to necessitate a formal analytical methodology to evaluate alternatives. Therefore, we constructed a computerized economic/financial model to capture the relationships between these important factors and to provide consistent estimates of all current and future costs of MILCON and P/PV BQs. The model, which is fully discussed later in this chapter, allowed us to simulate the impact of important factors on project economic feasibility under alternative assumptions.

IMPORTANT ECONOMIC FACTORS

One of our study objectives was to identify key decision factors that affect economic feasibility. We identified eight such important economic factors: occupancy guarantees, interest rates, discount rates, project size, contract term, construction specifications, type of personnel to be housed, and Government statutory and regulatory restrictions. In this section, we discuss each of those factors; in Chapter 5, then, we present an analytical (i.e., numeric) demonstration of the importance of these factors in the discussion of the test site results.

Occupancy Guarantees

Public/private ventures impose a business risk on the private developer. Although the private sector is accustomed to assuming risks, P/PV BQs are unlike other business risks in some important respects. A developer who builds a hotel in the private sector has control over the potential market. That is, the developer is free to rent rooms to whomever he can attract through advertising or other means. In the military BQ case, however, a developer does not have control over the market; he is solely dependent on the Navy and its operations at the base for lodging customers.

The developer does not have the option to convert the facility to an alternative use if lodging revenues are not sufficient.

Because of those extraordinary business risks, the private developer will charge a premium on the normal return on equity investment percentage to the Navy for assuming those risks; that premium will be in the form of higher room rental rates. In addition, the financial institution will charge a premium on its normal lending rate for the debt investment for assuming those risks; the premium again will be in the form of higher room rental rates.

Although we found the risks to be relatively high for the private sector, we found them to be relatively low for the Navy. That is, the Navy knows its current and future plans for troop strength and related personnel activities (e.g., training) at individual bases. The Navy alone is able to control the demand for BQ lodging facilities at each base; it can convert old MILCON BQs to alternative uses, direct sailors to stay in specific lodging facilities, and regulate the flow of temporary and permanent duty personnel in and out of individual bases to optimize lodging and other facility usage on the base. Given that the Navy accurately calculates its BQ lodging requirements for an individual base, it can assume much of the relatively low (to the Navy) risk of a restricted market and fluctuating demand. If the Navy assumes part of this risk, the private-sector premiums on return on equity investment and mortgage interest rates will be lower; room rental rates and therefore cost to the Government will also be lower.

The Navy has the authority to assume some of these risks under 10 U.S.C., Section 2809. The Navy assumes the risk in the form of guaranteed lease payments, rental revenue guarantees, or occupancy guarantees. We found that if the guarantees are large enough, the private developer may be able to obtain bond financing for up to 100 percent of the construction cost at lower interest rates than conventional mortgage financing.

Interest Rates

The pro forma financial analysis generated by our economic model revealed that debt service on the construction mortgage would be the largest single operating expense for a P/PV BQ. Not surprisingly, therefore, the economic feasibility of P/PV

BQs is highly sensitive to the mortgage interest rate the developer must pay to finance the project.

Two primary factors affect the P/PV BQ mortgage rate: one is within the Navy's control and the other is not. As discussed above, the Navy has the ability to assume part or all of the relatively low risk of a restricted market and fluctuating demand, thus lowering the project's interest rate. On the other hand, general economic conditions affect the entire structure of interest rates in financial markets. Periods of relatively high inflation and other times when long-term borrowing rates are relatively high are the worst times to initiate a P/PV BQ. The high interest rates on long-term mortgage debt incurred in financing a P/PV BQ significantly raise the life-cycle operating costs of the facility for the private developer; these higher operating costs are then passed on to the Navy in the form of higher room rental rates, which, in turn, decrease the economic feasibility of the project.

Discount Rates

To make cost-to-the-Government comparisons between MILCON and P/PV BQs, we must consider all relevant (i.e., construction and operation) costs over the life of the proposed project. This "life-cycle" approach necessitates the use of an appropriate discount rate to normalize the differing cash flows of alternative projects through time. Normalization is necessary because of the time value of money; a dollar received or spent 5 years from now is worth less than a dollar received or spent today. The chosen discount rate is used to express each year's cash flows in current (i.e., present) dollars and is known as the present value method.

The present value method assigns a smaller value to expenditures in a future time period; those expenditures are discounted at higher factors. MILCON expenditures all occur in the first few years of the project; therefore, they are discounted only slightly no matter what the discount rate is. On the other hand, P/PV BQ expenditures for construction are counted through debt service payments, which are stretched over the life of the project; they are discounted heavily and the selection of a discount rate makes a big difference in the calculated cost to the Government.

The results are that lower discount rates shift the result toward the MILCON alternative while higher discount rates shift it toward the P/PV option. Higher discount rates lower the net present value of the stream of P/PV expenditures.

Therefore, the choice of a discount rate can significantly affect the estimated economic feasibility of a P/PV BQ project.

Economic conditions affect the discount rate that should be used. As interest rates rise, so does the time value of money and, concomitantly, discount rates. Rising discount rates tend to offset, although not entirely, the effect of rising mortgage rates on the economic feasibility of P/PV BQs.

The real problem lies in the fact that Government agencies (i.e., DoD and OMB) sometimes force the use of unrealistically low discount interest rates for the cost comparison. Economic feasibility tests are then artificial and do not reflect the economic reality of the situation (i.e., the private sector perceives and uses a higher discount rate in its internal calculations of economic feasibility). We found this to be the case with the OMB Circular A-104-prescribed discount rate methodology and the DoD-prescribed discount rate methodology used for economic justification to Congress.

Project Size

The size of the BQ project, in terms of "expected annual room nights," must be sufficient for a private developer to be interested in the project. As discussed in Chapter 2, in performing its BQ lodging requirements analysis at the installation, the Navy must be careful to determine the proper size facility to request the private developer to build and operate. However, apart from accurate calculation of military requirements, the demand from other authorized users (OAUs) and the total number of rooms that can be justified given the total demand, are also important to economic feasibility.

The Navy, at the discretion of the installation commander, normally allows persons other than active duty military personnel to rent rooms nightly at the BQ facility on a space-available basis. Among these OAUs are military personnel on leave, geographic bachelors, DoD employees, civilian defense contractors, retired military, reservists and others such as relatives of Navy personnel stationed at the base. These OAUs represent a potential source of demand for room rentals that is over and above the officially calculated BQ lodging requirement. If the amount of OAU demand is relatively large, it can reduce some of the risk associated with an otherwise restricted military market and fluctuating military demand. In fact, if the private developer who perceives the potential demand from OAUs to be great enough,

might be induced to voluntarily build additional rooms to satisfy this extra demand. The revenues from the OAU's should allow contractors to offer lower room rates in their proposals.

The private developer translates the total anticipated demand into the number of annual room nights he expects to rent. When that number is divided by 365 days, and multiplied by the occupancy percentage necessary to cover all costs and a reasonable profit, the private developer obtains the maximum number of rooms that can be supported by the total demand. (We have simplified the calculation process for expository purposes.) In doing these calculations, the private developer considers the effects of economies of scale on the costs of operations. For example, a BQ of 50 rooms requires a manager the same as a BQ of 150 rooms, and an assistant manager may not be necessary until a BQ of 200 or 300 rooms is reached. The results of our economic analysis, which took these private sector economies of scale into account, indicated that P/PV BQs with fewer than about 100 rooms will not be economically feasible.

Contract Term

Public/private venture BQ facilities may have no alternative use or value at the end of the contract term. Therefore, a private developer must finance and make debt service payments on the facilities for the length of the contract or the asset's useful life, whichever is shorter. The useful life of a BQ facility is generally accepted to be between 40 and 50 years. Internal Revenue Service's (IRS's) rules stipulate a 32-year depreciation period for such structures, and private developers of P/PV BQs will depreciate the facilities over 32 years for tax purposes. Relatively short contract terms force unrealistically short financing periods, raising annual debt service costs and lowering economic feasibility. We conclude that contract terms should be at least 32 years.

When we began our study, 10 U.S.C., Section 2809, limited such facilities projects to 20-year contract terms. Based on our analysis, the Navy and DoD were able to convince Congress to amend Section 2809 to lengthen contract terms to a maximum of 32 years to be consistent with the IRS regulations.

Construction Specifications

Normal MILCON BQ design criteria are contained in the NAVFAC DM-36 series. However, as discussed in Chapter 2, these specifications contain many unnecessary requirements for BQs. The private sector has more experience than the Navy in constructing lodging facilities. They also have time-tested design and construction specifications based on industry standards and local building codes. The use of more private-sector construction specifications and local building codes lowers both construction and debt service costs, and that, in turn, results in lower room rates to the Navy and increased economic feasibility of P/PV BQs.

Type of Personnel To Be Housed

We found that P/PV BQs are feasible for transient officers, transient enlisted, and permanent party enlisted personnel at Grades E-4 and below. P/PV BQs are not feasible for permanent party officers or more-senior enlisted personnel (E-5 and above).

Transient personnel are allotted per diem for local hotel lodging if space is not available in the BQ facilities on the installation to which they are temporarily assigned. This per diem is generally greater than the estimated room rate that would be charged in a P/PV BQ and also greater than the allocated per night cost of constructing and operating a MILCON BQ.

Permanent party personnel, however, do not receive per diem. Rather, if they live in non-Government quarters, they receive a combination of BAQ and VHA. In addition, unlike transients, permanent party officers and senior enlisted personnel are allotted larger living quarters. Permanent party officer BQs also include kitchens. The sum of monthly BAQ and VHA payments is set by Congress at 85 percent of the normal lodging costs in the locality; they are lower than the private-sector's costs of building and operating permanent party BQs (i.e., apartments). For these reasons, P/PV BQs for permanent party officers and senior enlisted personnel are not economically feasible.

Permanent party junior enlisted personnel (Grades E-4 and below), however, are allotted smaller living spaces; they are housed two to a room. The sum of their BAQ and VHA allowances is estimated to be sufficient to economically justify an enlisted P/PV BQ for Grades E-4 and below.

Government Statutory and Regulatory Restrictions

Several Government-imposed restrictions on P/PV BQs can influence economic feasibility. Some of the primary restrictions are imposed by the Davis-Bacon Act and other statutes; those restrictions raise the costs of private-sector construction and/or operation. The DoD estimates that the Davis-Bacon Act raises military construction costs by 5 percent.¹ We included the possibility of these cost additions in our economic model and found that they did influence economic feasibility. We did not study, nor do we draw conclusions about, the efficacy of these types of Government restrictions.

Government-imposed additions of other costs to the P/PV side of the cost comparison equation also affect the project's economic feasibility. The addition of 2 percent of total construction costs for Federal Government site inspection and overhead is an example. We believe that 2 percent is unreasonable when private-industry construction specifications are used and local government officials conduct the site inspections; it is especially unreasonable when a separate line-item cost for Federal Government contract administration has already been added.

Another example of a Government-imposed restriction is the allocation of a "Government property tax" to the P/PV cost, over and above the actual property taxes paid to the local government. Although the P/PV BQ will receive some police and fire protection, it will have to pay for its own grounds and parking lot maintenance, utility maintenance, trash removal, and other such services. Again, the additional amount that the DoD required was unreasonable. (Note: DoD recently reversed its position on this issue and, for now, is not adding this imputed real estate tax to the P/PV costs.)

Although individual Federal Government statutory or regulatory restrictions would not necessarily make a P/PV project infeasible, several restrictions taken together do affect economic feasibility.

BAS MODEL

We constructed a detailed, computerized economic model – the BQ analysis system (BAS) – for estimating the economic feasibility of individual P/PV BQ

¹Testimony before the Military Installations and Facilities Subcommittee. 4 and 6 October and 3 and 9 November 1983

projects. We used the BAS model to analyze the economic feasibility of the test sites in our study. We also used it to develop decision matrices for determining the likely feasibility of individual projects under various combinations of values for key economic and operational factors.

The BAS model accounts for all relevant construction and operations costs for both MILCON and P/PV alternatives. The user can change the initial values of most economic factors. The model includes a Users Guide (Appendix C), and that guide explains the definitions of all inputs and the methodology behind the model's calculations.

The BAS model compares the net present value (NPV) of the MILCON and P/PV BQ alternatives. All life-cycle costs for both alternatives are discounted to current dollars for the comparison. The model produces printouts of the life-cycle cost tables, showing then year and present-year line-item costs. It also estimates a low-to-high first-year room rate for the P/PV BQ alternative.

The user enters data on construction costs for the MILCON alternative, typically from a DD Form 1391, *Military Construction Project Data*, but does not enter the operations costs for the MILCON alternative. These costs are not optional but rather are estimated by model formulas based on the size and type of BQ project under consideration. We developed the formulas on the basis of information gathered from the test sites and the studies and directives we received from the housing branch of the Naval Military Personnel Command (NMPC).

Construction costs for the P/PV alternative are based on a published cost estimating source, the *Marshall Valuation Service*. That source gives the estimated total delivered costs -- including design, site development, and construction costs -- for a given class of structure such as a hotel or dormitory. Those cost estimates are given in terms of gross square footage, including hallways and common areas. Adjustment factors to account for regional differences in site development and construction costs are also published and are to be used in the model. P/PV operations costs were provided by PKF and the industry and represent industry standards.

The BAS model needs to be updated annually with new Government inflation factors, military salaries, and BAQ and VHA amounts. The model contains a simple updating routine to allow users to input the relevant new data.

The model is based on LOTUS® 1-2-3® software, and thus, it can be used on any IBM-compatible personal computer. The BAS users guide helps the user with model inputs, outputs, and interpretation of results.

Using the BAS model, we simulated several hundred scenarios, each containing a different value for a key economic factor. The factors used in the simulations were: risk assumption, type of personnel to be housed, size of facility, interest rates, and contract term.

The simulations were an analysis of the sensitivity of P/PV BQ project economic feasibility to key economic factors. LMI used the results of the analysis to construct a set of "decision matrices," which installation commanders and other Navy claimants can use as a first approximation of the potential feasibility of a P/PV BQ. The decision matrices are not intended to provide a final answer on economic feasibility; interested users should use the BAS model and seek advice and assistance from other Navy organizations such as NAVFAC. The decision matrices are Appendix D to this report.

ECONOMIC JUSTIFICATION TO CONGRESS

As part of our study, we prepared an economic justification to Congress for a P/PV project for 150-unit transient officer BQs at each of the two initial test sites. In that economic justification, which is included as Appendix E, we found that the total cost to the Government, measured in NPV life-cycle costs, of a P/PV BQ would be less than 95 percent of the cost of both the MILCON alternative and the status quo alternative (i.e., per diem).

We prepared the economic justification in accordance with directives from NAVFAC. NAVFAC, in turn, received its directives from OSD, which receives some directives related to this type of justification from Congress and OMB and makes some of the rules itself. Our finding is that the economic justification process as described in Appendix E has several flaws and could be improved.

Current guidelines on the application of OMB Circular A-104 and other Government rules on selection of a discount rate do not reflect economic reality;

private businesses tend to use higher discount rates in their internal calculations of project feasibility that more closely reflect their own assessments of risk and economic conditions. We understand that OMB is currently studying this issue in light of a possible modification to Circular A-104. We recommend that DoD seek the guidance of OMB in developing a more realistic discount rate to be used in such economic justifications.

The economic justification also assigned an amount equal to 2 percent of total construction costs to the P/PV side of the equation for Federal Government supervision, inspection, and overhead costs. That 2 percent is unreasonably high. We recommend that in light of the use of local construction codes and local government inspections, only a 1 percent tax be assessed. Similarly, the economic justification assigned a Federal Government property tax rate of 2.63 percent, equal to the local property tax rate, to the P/PV. Since the Federal Government will provide less than half the services that the local government would provide (e.g., no schools), we recommend that the Federal Government imputed tax rate be no more than half the local government property tax rate. (Note: As noted previously, DoD recently decided to eliminate this cost from the P/PV.)

Finally, the MILCON alternative is not always the relevant comparison. When Congress has already turned down a MILCON budget request for a project, as is the case with both of the initial test sites, it has implicitly directed the Navy to continue the status quo of either per diem expenses or BAQ and VHA. The status quo then becomes the relevant comparison for economic justification purposes, not the rebuked MILCON option.

CHAPTER 5

TEST SITES

We performed much of the analysis leading to the recommendations in Chapters 6 and 7 of this report on test sites selected by the Navy to serve as case studies.¹ From these case studies, we determined the feasibility of P/PV BQs on Navy installations, developed decision criteria, and structured the generic economic analysis model. The test sites were the SUBASE, New London, Conn.; NETC, Newport, R.I.; Naval Air Station (NAS), Jacksonville, Fla.; Naval Medical Center National Capital Region (NMCNCR), Bethesda, Md.; and Naval Station (NAVSTA), Long Beach, Calif. All P/PVs were for BOQs except NAS Jacksonville which was for BEQs. In this chapter, we describe the sites, facility requirements, and economic analysis for each location. The SUBASE New London and NETC Newport information is combined since we recommend that these P/PVs be contracted together. More detailed information on each site can be found in the position papers in Appendices B, E, and F-L, with the exception of information on NAVSTA Long Beach. Early on in the analysis, we determined that the small requirement at that location made a P/PV infeasible and we terminated the test at that site.

We used our economic analysis model (see Chapter 4) to compare life-cycle costs to the Government for various BOQ options at a generic Naval installation. In using the model for each of the test sites and for each of the options, we assumed that design and construction would meet prevailing industry standards, which do not always match the NAVFAC DM-36 series requirements. Basic requirements such as room size, construction materials, and noise attenuation compare favorably. Design and operating standards are compared in Chapters 2 and 3. For all of the test sites except the NMCNCR in Bethesda, the number of rooms required for a BQ were taken from programming documents (DD Forms 1391, *Military Construction Project Data*) for existing projects. However, for SUBASE New London, NETC Newport, and NAS

¹All analyses presented in this chapter are based on data used to conduct the feasibility analyses presented in the site reports in the appendices. The data and analyses are the same as in those reports and are presented in more detail in the appendices.

Jacksonville, the prospect of P/PV BQs led to major reevaluations of the total BQ requirements documented in the DD Forms 1391.

The private-sector construction standards and costs used in the analyses were taken from the *Marshall Valuation Service*, one of the widely accepted sources within the hotel industry. We chose a general standard that provides fire-resistant construction, reinforced concrete columns and beams, concrete or concrete on steel deck flooring, face brick, carpeting, highly decorated public rooms, and good lighting and plumbing. These standards are commonly used and understood within the industry, and their use, together with a minimum of additional design constraints, should not only encourage more contract offers but allow more innovation at a lower cost.

The SUBASE New London MILCON option calls for steel columns and beams because of the special site conditions, and that requirement was carried over to the private-sector cost options. Such special requirements must be local inputs to the otherwise general economic analysis model.

We considered both permanent and transient personnel in our analysis. To serve both, a facility must have separate units since transient officers are not authorized kitchens and permanent officer and enlisted residents may object to sharing a floor with transients.

The developer may be given the option of renting rooms to transient personnel not normally authorized BOQ space. Those transient personnel include family members attending school graduations, DoD contractors visiting the base, military retirees, and geographic bachelors. The model accounted for space for these personnel separately since construction and operation of such space would be entirely a matter for contractor financing. It is useful to consider this option because any profits from this additional space may make the total concept more attractive to prospective developers.

SUBASE NEW LONDON AND NETC NEWPORT

The SUBASE New London serves as the homeport for two operational submarine squadrons, training center for the U.S. Navy's submarine fleet, and host to numerous tenant activities. Current BOQ facilities provide adequate billeting for up to 381 officers, with another 105 rooms classified as substandard. The SUBASE

requires adequate BOQ for 716 officers who are either assigned permanent duty at the base or are students at the submarine school. The shortfall of officers' billeting, compounded by overlapping class scheduling, contributes to an annual cost of approximately \$8 million in nonavailability per diem allowances. The installation programmed an FY87 MILCON project for construction of a new 157-room transient BOQ facility and demolition of one substandard building, with the total construction cost of the project estimated at \$9 million in FY87 dollars. The on-base site chosen for the SUBASE New London facility requires significant site preparation because of slope and rock formations, and thus the costs will be high -- estimated at \$1.4 million in FY87 dollars. Limited space and poor terrain severely restrict the selection of alternative on-base sites.

Selection of SUBASE New London as a test site provided the opportunity to examine the feasibility of private-sector financing of transient BOQs in a special situation. The relatively large costs for site preparation were also included in the private-sector estimates to make the MILCON/private-sector comparison economically realistic. Therefore, SUBASE New London is a "worst-case" scenario for private-sector costs; if a P/PV BOQ for transient officers proves economically feasible at SUBASE New London, it should also be economically feasible at similar installations.

The primary host activities at Newport include the NETC, the Naval War College, and part of the Naval Underwater Systems Center. The main mission of NETC Newport is to meet the training needs of students, including those attending Officers' Candidate School, Naval Academy Preparatory School, Surface Warfare Officers' School, and Officer Ship Material Readiness courses. Current BOQ facilities provide adequate billeting for up to 194 officers, with another 220 rooms classified as substandard. NETC Newport requires adequate BOQ for 1,074 officers. The existing shortfall of officers' billeting contributes to an annual cost of \$2 million in nonavailability per diem allowances. The installation programmed an FY87 MILCON project for construction of a new 150-room transient BOQ facility, with the total construction cost of the project estimated at approximately \$9.1 million in FY87 dollars. Along with the planned site, several alternative sites were available.

Economic Analysis

We used data for the programmed BOQs at SUBASE New London and NETC Newport in building our economic model. The options shown in Table 5-1 were analyzed at each site and compared with the MILCON option. These options are the most relevant for the purposes of illustrating the usefulness of the model in identifying the key factors that will determine the economic feasibility of a project. The model is capable of simulating dozens of options for a single project. Discussion of some of these options is more detailed here than in the following sections on the other test sites to demonstrate some of the dimensions of the analysis.

TABLE 5-1
MODEL OPTIONS FOR BACHELOR OFFICERS' QUARTERS
AT SUBASE NEW LONDON AND NETC NEWPORT

Option number	Location	Size	Other users	Financing
1	On base	MILCON	None	11% conventional
2	On base	Navy minimum	None	11% conventional
3	On base	Navy minimum	2 rooms	11% conventional
4	On base	Navy minimum	5 rooms	11% conventional
5	On base	Navy minimum	5 rooms	8% bond
6	Off base	MILCON	None	11% conventional

Note: All options are for a 32-year contract term

We selected some of the SUBASE New London and NETC Newport options to test the sensitivity of P/PVs to important factors. Among those factors were the use of MILCON square footage versus Navy minimums, on-base construction versus off-base construction, conventional loans versus bond financing, and rental to other authorized users.

The model results using the options shown in Table 5-1 for SUBASE New London and NETC Newport are shown in Tables 5-2 and 5-3, respectively, along with the MILCON estimated cost. The dollars shown in those tables are the NPVs of the costs to the Government for each option. Those costs include operations, maintenance, repairs, debt service, and return on investment; they represent the

model's estimates of the minimum price that a private developer would charge the Government to enter into an agreement. The tables also show the percentage of the MILCON cost option for each of the options we identified. The lower percentages represent lower costs to the Government; private developers would receive the same relative rate of return under any option. Congress will not normally authorize a P/PV unless its NPV is 95 percent or less than the NPV for a comparable MILCON BQ.

TABLE 5-2
COMPARISON OF MILCON AND ESTIMATED PRIVATE-SECTOR COSTS (NPV)
FOR BACHELOR OFFICERS' QUARTERS SUBASE NEW LONDON
(FY87 \$)

Option	Total cost NPV (\$)	Total revenue NPV (from other authorized users) (\$)	Total adjusted NPV (\$)	Percent of MILCON NPV
MILCON	23,583,848	0	23,583,848	100
Option 1	23,370,241	0	23,370,241	99
Option 2	21,904,007	0	21,904,007	93
Option 3	22,143,981	532,021	21,611,960	92
Option 4	22,431,949	1,170,446	21,261,503	90
Option 5	20,563,770	1,170,446	19,393,324	82
Option 6	22,729,776	0	22,729,776	96

The tables show that for both sites, Option 5, the bond financing option is the most economically feasible. Bond financing and Navy minimum square footage have an estimated NPV cost to the Government of 82 percent of the cost of the MILCON option at SUBASE New London and 71 percent of the MILCON option at NETC Newport. Conversely, Option 1 – 11 percent conventional financing and MILCON project square footage – is not feasible at SUBASE New London (99 percent of the MILCON NPV) nor at NETC Newport (97 percent of the MILCON NPV). If the private sector is allowed to use the Navy minimum square footage (Options 2–5) instead of the larger MILCON-proposed square footage, economic feasibility of a

TABLE 5-3

**COMPARISON OF MILCON AND ESTIMATED PRIVATE-SECTOR COSTS (NPV)
FOR BACHELOR OFFICERS' QUARTERS NETC NEWPORT
(FY87 \$)**

Option	Total cost NPV (\$)	Total revenue NPV (from other authorized users) (\$)	Total adjusted NPV (\$)	Percent of MILCON NPV
MILCON	24,799,569	0	24,799,569	100
Option 1	24,135,202	0	24,135,202	97
Option 2	19,850,681	0	19,850,681	80
Option 3	20,085,111	531,756	19,553,355	79
Option 4	20,366,427	1,169,863	19,196,564	77
Option 5	18,864,574	1,169,863	17,694,711	71
Option 6	N/A	N/A	N/A	N/A

Note: N/A = not applicable.

P/PV increases substantially; in Option 2, NPV drops to 93 percent of the MILCON NPV at SUBASE New London and to 80 percent at NETC Newport.

Options 3, 4, and 5 offer interesting possibilities for both the Navy and the private sector. They allow the contractor to build a few additional rooms beyond the MILCON requirement and rent them to OAUs. Allowing construction and rental of these few extra rooms yields significant results. Assuming a rental of an average of two rooms per night (Option 3), the NPV percentage is reduced to 92 percent of the MILCON option at SUBASE New London and to 79 percent at NETC Newport; rental of five rooms a night reduces the percentages to 90 and 77 for SUBASE New London and NETC Newport respectively. If the bond financing assumption is used in the five-room option rather than the 11 percent conventional financing, the NPVs are even lower (Option 5), further increasing the economic attractiveness of the arrangement to both the Government and the contractor. Two to five rooms per night is a reasonable and conservative assumption since it represents less than 5 percent of the average number of such authorized persons estimated to need lodging at any given time at SUBASE New London and NETC Newport.

The off-base option does not appear to be feasible. In the case of SUBASE New London, the off-base option NPV (Option 6) is 96 percent of the MILCON option because of the cost of purchasing and financing the necessary land and the associated property taxes.

Tables 5-2 and 5-3 illustrate the sensitivity of the results to the factors that are important in making P/PV BQ projects work. However, analysts may use the BAS model to run numerous additional options, applying various combinations of assumptions about interest rates, method of financing, number of rooms rented to OAUs, etc.

We recommend that SUBASE New London and NETC Newport procure P/PV BQs under a single contract. New London and Newport are about an hour's drive apart, and the industry maintains that "packaging" BQs on a regional or national level leads to economies of scale in both construction and operation. Such economies in simultaneous construction are fairly common and result from shared construction management and crafts expertise, and from added flexibility in the work force and equipment scheduling. Also, the greater cost of a two-BQ contract may lead to more favorable debt financing terms, especially in the use of bond financing or certificates of deposit.

Economies in operating costs stem from shared regional management. A major hotel chain may be reluctant to set up new procedures to manage only a single facility under a new and unusual concept. With two or more facilities, that setup cost can be spread among them. In fact, packaging facilities under one contract may eventually be needed to maintain the interest of many of the industry leaders. Their interest is needed to ensure a healthy number of responses to requests for P/PV proposals. Finally, with more than one facility, the financial risk is also spread out. Unforeseen expenditures or revenue decreases on one facility may be temporarily carried by the revenue from the others. When contractors' risk is reduced in this manner, the terms they offer to the Government are usually more favorable.

The original LMI-prepared position paper, supplemental requirements study, and RFP for SUBASE New London and NETC Newport are presented in Appendices B, F, and G.

NAS JACKSONVILLE

NAS Jacksonville was chosen as a test site because it needs a permanent party BEQ rather than a transient BOQ. The NAS Jacksonville requirement led to an analysis of various methods for P/PV contract payment and that analysis is discussed in Chapter 6. The full study and resulting RFP for NAS Jacksonville are presented in Appendices H and I.

NAS Jacksonville is the primary host command of the Naval Complex Jacksonville and controls approximately 3,800 acres of land. The base was officially commissioned in 1940, and \$15 million was invested for what was then intended to be a training base for Navy pilots. During U.S. involvement in World War II, the air station took on added importance, and by the end of the war, more than 11,000 pilots and 10,000 aircrew personnel had been trained there. Today, the station supports Fleet aviation units and some 50 tenant activities. Existing BEQ facilities provide adequate billeting for up to 1,557 personnel, with another 96 spaces classified as substandard. NAS Jacksonville reports the need for adequate BEQ housing for 2,277 personnel. The Navy proposed an FY89 MILCON project for construction of a BEQ and an Administration Building to accommodate 720 personnel in Grades E-1 to E-4, with the total construction cost of the project estimated at \$12.5 million in FY89 dollars.

Economic Analysis

The comparison between the cost of housing personnel in a P/PV BEQ and the cost of housing them on the economy is shown in Table 5-4. It is cheaper for the Government to pay BAQ and VHA to permanent party individuals in Grades E-5 and above rather than to house them in a P/PV BEQ because these personnel are authorized at least one room per person and the low BAQ and VHA rates the Government pays are not enough to cover the cost of providing that space. However, the Government will save money overall if personnel in Grades E-5 and above do not occupy more than 50 percent of the rooms. This is because the loss on the higher grades is offset by the savings on personnel in Grades E-4 and below who are housed at least two people per room.

TABLE 5-4

NAS JACKSONVILLE P/PV BEQ ECONOMIC COMPARISON

Status	Grade	1988 dollars per person per night	
		P/PV (\$)	On economy ^a (\$)
Permanent party	E1 - E4	7 - 8	8.50
	E5 - E6	14 - 16	10.72
	E7 - E9	28 - 32	14.34
Transients	E1 - E4	9 - 10	46.00
	E5 - E6	16 - 18	46.00
	E7 - E9	16 - 18	46.00

^a Quarters on the economy are paid from BAQ and VHA or per diem

Table 5-5 brings a MILCON BEQ into the comparison; it compares the NPV per person of each alternative over a 20-year contract. Note that it is far more economical for the Government to house all transient grades on base than on the economy. It is also more economical to house all permanent party grades below E-5 in a P/PV BEQ rather than MILCON.

TABLE 5-5

NAS JACKSONVILLE P/PV BEQ ECONOMIC COST COMPARISON OVER 20 YEARS

Status	Grade	NPV per person (1988 \$)		
		MILCON (\$)	P/PV (\$)	On economy ^a (\$)
Permanent party	E1 - E4	25,557	21,208	32,069
	E5 - E6	51,115	42,416	40,444
	E7 - E9	102,229	84,832	54,102
Transients	E1 - E4	25,557	21,208	173,549
	E5 - E6	51,115	42,416	173,549
	E7 - E9	51,115	42,416	173,549

^a Quarters on the economy are paid from BAQ and VHA or per diem

NMCNCR BETHESDA

The Naval Medical Command operates a regional headquarters at the National Medical Center in Bethesda. It was chosen as a test site because the installation wanted to explore the feasibility of combining a BOQ with a conference center and club under one P/PV contract. The full studies for the BOQ, conference center, and club are presented in Appendices J – L.

The installation consists of more than 80 buildings situated on some 300 acres of land. In addition to the Naval Hospital, the center is host to several tenant activities. Together, these activities – along with the Uniformed Services University of the Health Sciences – create a major center for medical care, research, and education.

Economic Analysis

The National Medical Center was the only test site for which the Navy did not have a firm estimate of the BOQ rooms required. It did not have that estimate because of the many categories of occupants the BOQ would have to house and the possibility that the National Institutes of Health (NIH) would share the facility. NIH, located adjacent to the center, has a large, unmet requirement for Government quarters. Demand analysis of the potential users of a BOQ produced the expected demands listed in Table 5-6. That table also shows the authorized lodging allowances for each category of demand and the 1988 prices the members of each category were paying for off-base accommodations. Thus, we can estimate the maximum room rate the members of each category would be willing to pay to stay in an on-base BOQ.

Table 5-6 lists the categories that would be willing to pay the room rates expected from a P/PV BOQ. The second part lists those that would not. This second group has a high demand for accommodations, but they are not reimbursed sufficiently to enable them to stay in a P/PV BOQ. For permanent party officers, for instance, the amount available for quarters comes from their BAQ and VHA. A weighted average of these two allowances for 1988 amounted to only \$22.02 per day, and they would have to make up the difference out of their own pockets. Moreover, the least expensive room would be a hotel room, not the small apartment with a kitchen that they are authorized.

TABLE 5 - 6
ESTIMATED DEMAND FOR SLEEPING ROOM IN THE PROPOSED BOQ

Categories that would be attracted by PPV room rates							
Market segment	Destination/place of employment/hospitalization	Estimated daily demand for the rooms in the proposed BOQ ^a	Estimated daily room rate potential (\$)	Maximum per diem lodging cost to U.S. Government (February 1988) (\$)	Lowest cost for daily rentals of single rooms on the economy (\$)		
					Private homes	Hotels	Apartments
Transient officers & DoD civilians	NMCNCR	82		84	N/A	37	N/A
Patients	NIH	70		40 - 60	10 - 15	37	17 50
Conference attendees	NIH	43	40 - 60	84	N/A	37	N/A
Outpatients (active duty & active duty dependents)	NMCNCR	147	40 - 50	84	N/A	37	N/A
In-patients (active duty & active duty dependents)	NMCNCR	8	40 - 50	84	N/A	37	N/A
Civilian contractors	NMCNCR	9		84	N/A	37	N/A
PCS families	NMCNCR	4	30 - 40	None	10 - 15	37	17 50
All others (leave and retirees)	Washington area	25 - 50	40 - 60	None	10 - 15	37	17 50
Total		388 - 413					

Categories that would not be attracted by PPV room rates							
Market segment	Destination/place of employment/hospitalization	Estimated daily demand for the rooms in the proposed BOQ ^a	Estimated daily room rate potential (\$)	Per diem allowance (VHA/BAQ) cost to U.S. Government (February 1988) (\$)	Lowest cost for daily rentals of single rooms on the economy (\$)		
					Rooms in private homes	Hotels	Apartments
Permanent party officers	NMCNCR	114		22.02	10 - 15	37	17 50
Geographic bachelors	NMCNCR	88	10 - 15	None	10 - 15	37	17 50
In-patient (military retired and their dependents)	NMCNCR	3	10 - 20	None	10 - 15	37	17 50
In-patient and outpatient relatives	NIH	5	10 - 20	15 ^b	10 - 15	37	17 50
Outpatients (military retired and their dependents)	NMCNCR	123	10 - 20	None	10 - 15	37	17 50
Total		333					

Source: Pannell Kerr Forster.

Note: N/A = Not applicable.

^a Based on research; this number of rooms might be demanded at the proposed BOQ for one of the following reasons: location, mandatory housing assignment, reasonable room rates. If rooms were constructed to house some permanent party officers, they would have kitchenettes.

^b This is the per diem allowance that NIH would give a relative of a patient who was staying with the patient

As at the previous test sites, we performed an economic analysis with our BAS model, using various values for occupancy guarantee, contract term, and loan period. In addition, we varied the expected percentage of the NIH market that would choose to live in a Navy BOQ (the NIH market capture rate) and the size of the BOQ (i.e., number of rooms). The results of this analysis are presented in Table 5-7. They show, once again, the benefit of offering an occupancy guarantee. They also show how the size of the NIH market captured has a marked effect on the expected contractor's room rate.

TABLE 5-7
NATIONAL MEDICAL CENTER ROOM RATES UNDER VARIOUS ASSUMPTIONS

Assumption	Alternative				
	1	2	3	4	5
Guarantee offered	Yes	Yes	Yes	Yes	No
Contract term (years)	20	20	20	20	40
Loan period (years)	20	20	20	20	30
NIH market captured (%)	0	25	40	50	40
Size of facility (rooms)	287	315	332	343	332
Expected room rate (1988 \$)	27	26	26	24	28
Comparison to MILCON (%)	79	82	83	82	99

Source: BAS Model

Consideration of a Conference Center with the BOQ

We recommended that a conference center not be included in this project. That recommendation was made after an in-depth look at the supply and demand of conference space in the Washington, D.C., metropolitan area.

The private sector offers 17 conference or meeting facilities in Montgomery County and 7 more in the Washington metropolitan area. These conference rooms are experiencing a 64 percent usage level — higher than the 55 to 60 percent industry average and indicative of a shortage of conference center space in the private sector. That usage is a seemingly favorable indicator of the need for a P/PV conference center at the National Medical Center. Continued study, however, revealed that the

undercapacity has been noted by the industry and a major boom is underway to construct facilities that will increase capacity by 40 percent over the next 5 years. Eleven conference centers are under design or contract; all 11 new facilities will be state-of-the-art conference centers and the market is about to become extremely competitive.

At the National Medical Center, a 25,000 square foot conference facility would take care of 80 to 85 percent of the existing and future demand at the activity. That size is the industry's minimum for economy. Discussions with activities at the center, however, revealed that they are reluctant to pay for conference or meeting space. The activities either cannot afford to pay for the space or some meetings, such as local award ceremonies, do not lend themselves to a conference center. Adding the expected capture rate of the demand from NIH and other Federal and local government agencies will still not achieve the required usage level. The most favorable economic projection occurred at rates set at 80 percent of market. Even at those rates, however, the facility did not break even until Year 10. To be economically viable, then, the conference center would have to open its doors to the private sector and compete in an environment that is about to become extremely competitive.

A conference center on a Naval installation, however, would be in a poor position to compete with those in the private sector. The need to give priority, sometimes on short notice, to Naval needs would reduce the center's customer responsiveness to the private sector. Moreover, to be competitive, the center would have to provide accommodations for out-of-town conferees. By industry standards, a 25,000 square foot facility needs 250 to 300 hotel rooms to support it. Those rooms would have to be dedicated to conference center use since conferences are booked months, and sometimes years, in advance. Once again, however, the Navy's requirement to give room priority to transients would reduce the center's customer responsiveness. The alternative of building these 250 to 300 rooms in addition to the 240 rooms the Navy needs would produce a huge facility. Moreover, because of slack time between conferences, hotel rooms dedicated to conference centers are completely full only 30 to 35 percent of the time. Hotels in the private sector try to overcome that low usage by offering inexpensive weekend packages and off-season specials to the general public, neither of which would be appropriate for a Naval installation.

Security requirements at the National Medical Center would also reduce customer responsiveness. During a visit by the President of the United States, for instance, the Secret Service may restrict access to the installation, especially in times of intense terrorist activity.

Finally, the amenities offered by a conference center could not compete with those in the private sector. Corporate and executive conferees expect swimming pools, fine restaurants, and other amenities. Although the food and beverage facilities at the National Medical Center are ample, they are not targeted for the conference market.

For all of those reasons, a conference center at the National Medical Center would not successfully compete in the area's developing conference center market. Without the private sector, the expected demand from the National Medical Center, NIH, and other agencies of the Federal Government and the District of Columbia would not be sufficient to support a conference center.

Consideration of a Club with the BOQ

We recommended against including a club and restaurant in the BOQ project. Current on-base food and beverage facilities are sufficient to serve the additional demand that would be generated by the BOQ. The officers' club could handle the visitors who choose to eat on base; it would enjoy the additional revenues without taxing its capacity. In fact, the base has six food and beverage facilities that provide a variety of choices, and adding a seventh in the BOQ would not be cost-effective. Moreover, closing the existing officers' club and including that function in the new BOQ would also not be cost-effective. The existing facility has no debt burden on the Nonappropriated Fund (NAF), whereas the debt burden for a new facility would be borne by higher prices or reduced income to the NAF. A new club in the BOQ would also have to accommodate both the officers and enlisted clubs from the current facility since the enlisted club alone could not support the cost of operating the current facility.

NAVSTA LONG BEACH

We chose NAVSTA Long Beach as a test site to evaluate the feasibility of constructing a small P/PV BOQ without offering occupancy guarantees. We

determined early in our analysis that the small requirement at that location made a P/PV infeasible, and we then terminated the test at that site.

Naval Station Long Beach is the homeport of a Battleship Surface Action Group and numerous auxiliary vessels. The installation is also host to the Naval Shipyard Long Beach, which is the Navy's only depot-level maintenance activity between San Diego and San Francisco. Existing BOQ facilities provide adequate billeting for up to 49 officers rather than the 230 for which requirements exist. The installation programmed an FY87 MILCON project to construct a new 56-room BOQ facility at a total construction cost of \$3.1 million in FY87 dollars.

Economic Analysis

We performed an economic analysis using the BAS model by changing various assumptions. The main factors that were adjusted were occupancy guarantee, other authorized users, contract term, loan period, and size of the facility. The results of this analysis are presented in Table 5-8.

TABLE 5-8
NAVSTA LONG BEACH ROOM RATES UNDER VARIOUS ASSUMPTIONS

Assumptions	Option 1	Option 2	Option 3	Option 4	Option 5
Guarantee offered	No	Yes	Yes	Yes	Yes
Other authorized users	Yes	Yes	Yes	No	Yes
Contract term (years)	32	32	32	32	32
Loan period (years)	32	32	20	32	32
Size of facility (rooms)	56	56	56	56	105
Expected room rate (1988 \$)	34	30	32	31	29
Comparison to MILCON (%)	114	103	107	104	95

Source: BAS Model Version 3.1

Option 1 is for a 56-room P/PV BOQ, with a 32-year contract term and no occupancy guarantee, which results in a project whose NPV is 114 percent of the MILCON P/PV. Option 1 is not feasible because the NPV exceeds 95 percent of the MILCON NPV. By offering an occupancy guarantee, in Option 2, the NPV is reduced to 103 percent of the MILCON NPV; this option is not feasible. In Options 3 and 4, we

changed the loan period and other authorized users factors; however, both of these options were also not feasible since their respective NPVs were 107 and 104 percent of the MILCON NPV. In Option 5, we increased the size of the BOQ facility to find the break-even point. We found the break-even point to be a 105-room BOQ with an occupancy guarantee and a 32-year contract term.

CHAPTER 6

RECOMMENDED APPROACH FOR BACHELOR QUARTERS PUBLIC/PRIVATE VENTURES

PHYSICAL ATTRIBUTES

Before determining the physical attributes of a P/PV BQ, an installation must decide on the categories of personnel who will occupy it. The economic analysis presented in Chapter 4 shows that P/PV BQs are not economically feasible for permanent party enlisted personnel above Grade E-4 or for permanent party officers. If the installation primarily needs BQ space for those personnel, it must decide whether it can build a BQ with rooms for both permanent party and transient personnel. The higher transient room rates would then subsidize the permanent party rooms. The ramifications of this type of subsidy and the methods of payment are discussed later in this chapter.

The types of rooms and the number of rooms that an installation requires for bachelor housing are the most important factors in determining the size of a P/PV BQ. Since the BQ's size affects the profitability of a P/PV, the number of rooms required must be as accurate as possible. Thus, the contractor should not use requirements specified in MILCON DD Forms 1391 without thorough verification.

The requirement should not include non-BQ functions. For example, exercise rooms, swimming pools, and saunas do not generate revenues in their own right, and the costs of their construction and operation must therefore be borne by higher room rates. The most striking example of a non-BQ function is the conference center. Appendix J contains the detailed study on a conference center for the National Medical Center in Bethesda, and it illustrates the economic and marketing difficulties of such a venture. If the installation does not have access to enough Government organizations willing to pay for meeting space, it should not consider adding a conference center to the BQ requirement.

The installation must determine whether it wants the BQ on base or whether it can be built off base. If a suitable on-base site is available, it will probably be the best option. An on-base site is less expensive and should result in lower room rates. It

also eliminates the cost of transportation for the occupants, and operational advantages may accrue from having more personnel close to their places of duty. The contractor is unlikely to incur any advantages in building the BQ off base.

The number of BQ rooms should be specified as a minimum. The contractor then should be allowed to build additional rooms for OAUs to increase revenues (and, hence, lower room rates) as discussed in the economic analysis in Chapter 4. The facility site, if on base, should be chosen with expansion in mind.

The quality of construction can be specified by using the generic descriptions from the commercial estimating services. This will help to keep the size of the RFP down and give maximum flexibility to the contractor who will build and own the facility. The major companies in the hotel and dormitory industries have far more experience than military engineers in the design of hotels and dormitories. The Navy should keep its other specifications to a minimum.

The minimal sizes of individual rooms should be specified to match Navy minimums. Such specification will not pose problems since industry designs usually meet or exceed those minimums. Similarly, the quality of furnishings should be specified as equivalent to that found in midpriced hotels.

OPERATIONAL ATTRIBUTES

The installation should be prepared to offer high occupancy guarantees whenever the size of the installation's requirement allows it. In doing so, the Government will reap considerable benefits from a rather small risk. The contractor will perceive that its risk is lower and may become eligible for a bond or certificate of participation financing. With that bond or certificate, the contractor can submit a proposal with lower room rates and thus save the Government considerable money.

The installation need not hesitate to include specifications in the contract for strictly military requirements. The industry will accommodate room inspections, drug shakedowns, installation sign restrictions, security requirements, and similar military needs.

Priority of BQ assignments will directly affect the contractor's perception of business risk and hence the rates the contractor charges for rooms. If the contract specifies that all MILCON BQ rooms be filled before people are sent to the P/PV BQ, the contractor bears a higher risk of empty rooms and has no control over the market.

If, on the other hand, the Government enunciates a policy of filling a specified number of P/PV rooms before it fills MILCON rooms, the contractor's risk is reduced and that reduced risk should be reflected in lower room rate proposals. The Government then assumes the risk of having empty rooms in the MILCON BQs while paying for rooms in the P/PV BQ. However, the installation has far more control over the room supply-and-demand ratio than the contractor has.

The installation is responsible for determining the size of the P/PV BQ and should have meticulously determined the requirement for it. Moreover, the installation also has the power to change the demand patterns by redesignating BQs from transient to permanent party and from officer to enlisted. It should therefore be relatively easy for the installation to fill empty MILCON BQ rooms if the requirement has been miscalculated or the demand shifts. This means that a high risk for the contractor has been replaced by a low risk for the Government and both sides would benefit.

We offer one caution: If the contractor is allowed to build additional rooms for other authorized users, the Government should not agree to fill those rooms before MILCON rooms. That would allow the contractor to build a very large facility and take all of the business away from the MILCON BQs. Instead, the Government should agree to fill only the number of rooms specified in the installation's requirement. Any additional rooms for other authorized users should be built and filled at the contractor's risk.

Special safeguards are needed to ensure that the P/PV facility is maintained properly. The large companies in the hotel industry have reputations to protect and their corporate cultures are geared toward customer satisfaction. Such may not be the case in the dormitory industry, but even that industry has a habit of concern for the customer. However, a P/PV BQ places the contractor in a monopolistic position, and may tempt the contractor to pay less attention to minor maintenance.

Normally, the Government imposes the contract requirements through a series of actions leading to contract termination. However, a P/PV contractor will soon realize that the Government is reluctant to readvertise a contract, at a cost of thousands of dollars and many man-months of effort, simply because of a few dripping shower heads, some frayed carpet, or the need for some touch-up paint.

Timely correction of these problems is important for the occupants' quality of life, however, and a mechanism is needed to ensure they are completed.

An appropriate mechanism is an enforceable maintenance plan. The plan can be part of the proposal submitted by the winning contractor, but it should include minimum response times and maximum repair times for emergency, urgent, and routine maintenance and repairs. To enforce these time limits, the contract should allow the Government to declare a room or a portion of the building as "uninhabitable" until the problem is repaired. This will deny the contractor the room rents for the affected areas and act as a direct incentive to abide by the maintenance plan. The example RFPs shown in Appendices G and I contain this provision.

The Government must also provide assurance against the contractor's risk of base closure or drastic troop reductions. This risk may seem negligible to the Government, but it is quite real to the companies responding to an RFP. Once again, the perception of high risk will drive up the proposed room rates. The Government can reduce the contractor's risk considerably and at the same time, assume only a small risk itself. The contract should require the Government to buy the P/PV facility at book value in the case of a 50 percent reduction of installation population for a specified period. If the installation believes that the risk of such a reduction in population is too great to assume, then it should not be considering an additional BQ, either P/PV or MILCON.

Another contractor risk can be similarly reduced with almost no increase in Government risk. The contractor will have no control over the market demand for the P/PV BQ rooms except in the case of the other authorized users. If the installation decides to build another BQ (either P/PV or MILCON), the contractor may be faced with unexpected competition and a change in the demand pattern. This perceived risk will translate into higher room rates. The Government can easily skirt the risk by giving the contractor the first right of refusal on constructing and operating any future BQs in the same category (i.e., transient BOQ, permanent party BEQ, etc.).

METHODS OF PAYMENT

The occupant should pay for transient P/PV rooms. The occupant's home station will then reimburse the occupant from per diem funds when a travel voucher is filed. This method is currently in use for transient BQs and commercial hotels and

requires no change for P/PVs. The Government will enjoy the savings from P/PV room rates that are lower than those in commercial hotels simply by having to pay less per diem to its transient personnel. The hotel industry is used to collecting room charges from the occupants, and the contractor should have no difficulty implementing the system.

Payment for permanent party BQ space, however, is a much more complex issue. Permanent party BQ occupants are not paid a quarters allowance. Permanent party personnel living off base are paid a BAQ and often a VHA. A permanent party BEQ would house some of the personnel currently living off base, and a P/PV BQ should cost less than an individual's BAQ and VHA. If it does not, it is cheaper for the Government to forgo the BQ and continue paying its personnel BAQ and VHA to live off base. (The Navy may have noneconomic reasons for moving personnel into on-base quarters; among those reasons is proximity to the mission, in which case a tradeoff must be made between the additional cost and the added benefit.) The issue therefore becomes a cost-avoidance matter, and a system is needed to allow the Government to realize the savings from the lower priced P/PV rooms.

If the Government continues to pay the occupants their BAQ and VHA, they will pocket the difference between those payments and the cost of the rooms. Moreover, to stop payment on rooms declared "unoccupiable" because of maintenance deficiencies, the occupants would have to be moved out.

To capture the savings from a P/PV, the Government could lower the BAQ and VHA payments to occupants until they matched the cost of the rooms. However, the BAQ rate is set by Congress and special legislation would be needed. Moreover, the rate would be different for every P/PV contract and it would have to be changed every time there was a change in the room rate.

The alternative is for the Government to make a lump-sum payment much like any other leased facility. A lump-sum payment will probably lower the room rate since the contractor can avoid the administrative burden of collecting from the occupants and the financial burden of an escrow for bad debts. However, the Navy must decide which account is to be used to pay for the P/PV. Payment from the installation's or major claimant's operations and maintenance, Navy (O&MN) account would be the simplest method, but this adds a burden on the O&MN account that was formerly borne by the military personnel, Navy (MPN) through BAQ and

VHA payments. The burden may also have been partially borne by the MILCON account if occupants had been living in a MILCON BQ. To avoid this added burden on an already stretched O&MN account, the Navy should investigate the feasibility of an O&MN subsidy from the MPN account to pay for P/PV leases or direct lease payment from the MPN account. Whichever method is chosen, it will have to be flexible enough to vary the payment amount as room rates change or as some room payments are withheld.

The P/PV contractor should be able to increase the room rates over the term of the contract to allow for inflation. The amount of the increase should be controlled, however, by limiting it to a suitable index such as a consumer price index (CPI). The room rates should be allowed to increase up to a certain percentage of the CPI increase, and that percentage should be part of the proposals in response to the RFP.

THE RFP APPROACH

We recommend that the Navy use source-selection procedures in awarding P/PV contracts. The criteria for source selection should encompass four primary areas:

- Design and construction plans
- Experience and performance history
- Operations and maintenance plans
- Cost.

We recommend that the Navy use the lease agreement form of contract for BQ P/PVs. Any Government assets (i.e., land) to be used in performance of the contract should be provided to the contractor through an out-lease agreement with any P/PV capital improvements being required under a separate lease agreement.

We recommend that the Navy use performance standards for operations describing what is expected of the contractor without detailing how it is to be accomplished and without using detailed specifications.

We recommend that the Navy provide offerors with details describing the full extent of the development opportunity. Include the following information in the RFP, either as attachments or appendices:

- Site plans
- Utility plans
- Geotechnical studies
- Marketing studies
- Assets inventory
- Utility costs
- Financial statements.

We recommend that the Navy specify minimum capital improvement requirements along with the associated development schedule. However, the ultimate size of the facility or any amenities included should be left to the contractor.

We recommend that the Navy include a disposition of improvements clause in the contract that gives the Navy the option to obtain title to contractor improvements upon expiration of the P/PV contract.

We recommend that the Navy include a reimbursement guarantee clause in the contract to protect the contractor from possible base closures or realignment.

We recommend that the Navy keep its bonding requirements to a minimum and require only construction performance and payment bonds.

Example RFPs

We have included two prototype RFPs in Appendices G and I of this report. Appendix G is the recommended draft RFP solicitation document that we submitted to NAVFAC for the P/PV BOQ project at NETC Newport and SUBASE New London. Many Navy organizations made numerous changes to that draft RFP. Thus, the actual RFP that was released by the Northern Division, NAVFAC, for the project was extremely conservative because of the relative newness of P/PVs and the research and development nature of these initiatives. As experience is gained and the credibility of P/PVs is established, we expect future RFPs to be less conservative and more in line with the Logistics Management Institute's recommendations.

Appendix I is the recommended draft RFP solicitation document that we submitted to NAVFAC for the P/PV BEQ project at NAS Jacksonville; however, that project was not pursued by the Navy.

AN APPROACH TO THE DECISION MAKING

The P/PV economic and policy decisions presented in this study are varied and complex. Most installation managers have little experience in the P/PV concept so a logical, structured approach to the decision making is called for. Appendix D contains an example of a decision matrix for the P/PV BOQ decisions. Such a matrix would guide installation managers through the issues to be addressed and would give the first indications as to whether a P/PV BOQ is the right choice for that installation. However, before the final decision is made to issue an RFP, a more sophisticated economic analysis is needed. Our computer model provided to the Navy in the course of this study can perform that analysis. The model will enable Navy decision makers to determine the feasibility of a P/PV BQ against various options, project scopes, and market conditions. Unless the P/PV has unusual circumstances, the BAS model will enable the Navy managers to reach all the decisions necessary for a P/PV request for proposals for a BQ without the need for an outside study.

SUMMARY OF RECOMMENDATIONS FOR THE APPROACH TO A P/PV BQ

- Navy managers should use the BAS to help them determine the feasibility and scope of a P/PV BQ. It provides the means to make the decisions in house without further outside study.
- Before initiating the analysis, the installation and major claimant should analyze the installation's requirement for BQ carefully. Requirements used to justify MILCON projects should not be used without verification.
- A P/PV BQ should not be considered for permanent party officers or permanent party enlisted personnel above Grade E-4 unless the Navy is willing to subsidize the housing costs for these personnel out of per diem funds. This would be done by contracting for a joint transient-permanent-party facility and allowing higher transient room rates to make up for artificially low permanent party rates.
- Prior to releasing an RFP, the Navy should complete analyses of the site and demand, conduct a geotechnical study of the site (i.e., soil borings), develop the design guidelines, estimate complete construction costs, and write the terms and conditions of the P/PV agreement.

- The facility should be constructed on base if at all possible.
- The contract should not mandate the inclusion of non-BQ functions such as exercise rooms, restaurants, or saunas. The contractor should be allowed to provide such options (for instance, a breakfast bar) if it chooses to.
- The facility should not include a conference center unless there is sufficient fee-paying Government demand to support it or unless the Navy is willing to subsidize it through higher room rates.
- The RFP should specify only basic requirements such as minimum number of rooms, room size, Navy fire and life safety code items, and minimum required furnishings. The design should be done by the contractor. Construction quality can be specified by reference to local building codes and to construction classes defined in commercial estimating services.
- The Government should offer substantial occupancy guarantees under the authority of 10 U.S.C., Section 2809.
- The contractor should be allowed to build additional rooms for other authorized users and to market these rooms aggressively.
- The installation should adopt a room assignment policy that requires the P/PV rooms (not counting any extra rooms built for other authorized users) to be filled before the rooms in MILCON facilities.
- Safeguards against poor maintenance should be included in the contract. They should allow the Government to declare a room or a portion of the facility as unoccupiable if it does not meet the standards specified in the facility's maintenance plan. Payment would not be made for any unoccupiable space.
- The contract should include safeguards for the contractor against changes in the market outside of its control. A provision is needed for the Government to buy the facility if the installation's population falls 50 percent for an extended period. Another is needed to give the contractor the first right of refusal on future facilities in the same category.
- The method of payment for transient facilities should be through the current per diem system where the occupant pays for the room and is later reimbursed. Any permanent party space should be paid for in a lump-sum lease arrangement. The Navy should decide what account is to be used for this payment before undertaking any permanent party BQ P/PV.
- The contract should allow the contractor to raise room rates to keep up with inflation. The raises should be coupled to a convenient index such as the regional consumer price index.

CHAPTER 7

CAPITALIZING ON PUBLIC/PRIVATE VENTURE OPPORTUNITIES

We have thoroughly studied economic, operational, social, and political aspects of P/PV Navy bachelor housing. Our findings and conclusions are based on analyses of numerous military and private industry data and many site visits and meetings with Navy personnel at all levels and industry representatives. The Navy has received offers from the private sector in response to RFPs for transient BOQs at two sites based largely on our interim recommendations. We believe the issue of P/PV BQ feasibility is clearly settled, and with certain identifiable exceptions, P/PVs are feasible in all respects. The Navy now needs to take steps to facilitate the planning and procurement process. This chapter recommends actions the Navy should take to capitalize on P/PV BQ opportunities.

PROCEED VIGOROUSLY WITH P/PVs

Our analysis clearly shows that P/PVs for transient officers, transient enlisted, and some permanent-party enlisted personnel are feasible. The Federal Government can save money by using P/PVs rather than traditional MILCON BQs or payments for lodging on the economy (i.e., off base). The industry can easily accommodate the operational requirements for an on-base BQ.

The feasibility issues do not need further study. We recommend the Navy vigorously pursue P/PV BQ projects at installations with a large enough new lodging requirement. The industry agrees with our findings and conclusions and is eager to respond. However, industry would like to see some changes in the Navy's approach to P/PV bachelor housing.

ACCELERATE THE PLANNING AND RECRUITMENT PROCESS

The planning and procurement process is too long and costs the Government money in terms of continued, relatively expensive, off-base lodging. P/PVs are new, and time should be given in the planning phase to develop the optimum project parameters. However, delays in the process should be minimized.

We believe that pursuing P/PV BQs according to the approach developed in this project will help avoid delays and will help to save the Navy not only MILCON dollars, but per diem O&M dollars as well.

USE THE DECISION MATRICES AND BAS MODEL

We developed an extensive computerized economic and financial analysis model for determining the most feasible options for particular projects (Appendix C). We also developed easy-to-use decision matrices, based on the model, to help Navy decision makers pinpoint the feasible range of options before using the computer model for detailed analysis (Appendix D).

We recommend that the Navy use the decision matrices and the BQ analysis model to analyze P/PV BQ options. Use of the matrices and model will accelerate the P/PV process and will focus installations' thinking on the important parameters that will ensure a successful P/PV BQ project.

Finally, use of the matrices and model precludes the need for additional studies of P/PV BQ feasibility. Their feasibility is clear and the model, matrices, and other recommendations in this report are almost all the resources installations need to get the P/PV process going in the right direction.

ATTRACT INDUSTRY WITH MUTUALLY BENEFICIAL OPPORTUNITIES

The Navy wants to realize economic and other benefits from P/PV BQ opportunities. Private industry also wants to realize benefits, primarily economic, from P/PV BQs; but, private industry must be *attracted* to Navy P/PVs. The hotel and dormitory industry does not depend at all on Navy P/PVs for its livelihood. In fact, some hotel managers or owners could take the view that they would rather have the Navy continue to pay them the relatively higher off-base per diem lodging rates than to cooperate with the Navy in P/PVs. RFPs should not contain a financial and operational framework that is unreasonably and unnecessarily lopsided in favor of the Navy. Instead, the RFPs should contain well-documented demand (i.e., rooms requirements, joint risk taking, cooperative operational requirements, and other attributes that represent a mutually beneficial project to the Navy and the contractor). The P/PV BQ contractor is going to be on base running a lodging facility at a great deal of entrepreneurial risk for 32 years. Without a mutually beneficial

contract and cooperation between the parties, it will be a long, frustrating association.

REQUEST THAT 10 U.S.C., SECTION 2809, BE MADE PERMANENT

Section 2809 is temporary legislation for testing P/PVs in the military. It provides needed flexibility in the procurement process to negotiate relative amounts of risk assumption between the Military Service and the P/PV contractor. The result of this flexibility is greater economic benefit (i.e., lower BQ lodging costs) to the Federal Government. We recommend that the Navy request DoD to initiate legislative action to Congress to make Section 2809 a permanent authority.

DEVISE AN ECONOMIC JUSTIFICATION METHODOLOGY SPECIFICALLY FOR P/PVs

Even the best P/PV projects will not come to fruition if the methodology used to evaluate and approve them is flawed. Currently, the Government has no set methodology for evaluating P/PV projects. Its methodology has evolved from adapting OMB Circular A-104 and from DoD-congressional interchanges. This approach can easily be biased against the P/PV project. A specific methodology for evaluating P/PVs should be established.

We recommend the Navy request DoD to devise an economic justification methodology specifically for P/PVs. The new methodology should reflect the economic realities of P/PV comparisons. For example, discount rates should more closely reflect the private sector's discounting (i.e., opportunity cost) of the project since the contractor is going to own and operate the facility as it would the same business outside the gate. Other methodological issues also need to be addressed and solved. The new P/PV economic justification methodology should be developed as quickly as possible before otherwise-feasible projects are rejected.